

nals. The computer program implemented in the apparatus may carry out, but is not limited to, the tasks related to FIGS. 2 to 4 and 7 to 9.

[0073] The computer program may be stored on a computer program distribution medium readable by a computer or a processor. The computer program medium may be, for example but not limited to, an electric, magnetic, optical, infrared or semiconductor system, device or transmission medium. The computer program medium may include at least one of the following media: a computer readable medium, a program storage medium, a record medium, a computer readable memory, a random access memory, an erasable programmable read-only memory, a computer readable software distribution package, a computer readable signal, a computer readable telecommunications signal, computer readable printed matter, and a computer readable compressed software package.

[0074] Even though the invention has been described above with reference to an example according to the accompanying drawings, it is clear that the invention is not restricted thereto but can be modified in several ways within the scope of the appended claims. Further, it is clear to a person skilled in the art that the described embodiments may, but are not required to, be combined with other embodiments in various ways.

1. A method, comprising:

applying, by a mobile communication device, uplink signaling in mobile communication, wherein the signaling comprises information determined by the device as related to a traffic status of a direct communication link between at least two user terminals being the terminating points of the communication; and transmitting the information in the uplink to a base station from at least one user terminal involved in the direct communication link thereby enabling the base station to control the quality of service of an end-to-end communication between the at least two user terminals based on the received information.

2. The method of claim 1, wherein the information is related to a packet data convergence protocol.

3. The method of claim 1, wherein the uplink signaling is applied on a medium access control layer or on a radio resource control layer.

4. The method of claim 1,

wherein the transmitting is performed periodically, after a predetermined event, or on request.

5. (canceled)

6. (canceled)

7. The method of claim 1, further comprising:

transmitting the information simultaneously in a synchronized manner, or at a predefined time offset compared to another user terminal when more than one user terminal transmits the information.

8. (canceled)

9. The method of claim 1, further comprising:

receiving the information at a base station; monitoring data volume of ongoing end-to-end communication between at least two user terminals on the basis of the received information; and

controlling the quality of service of end-to-end communication between the at least two user terminals on the basis of the received information.

10. The method of claim 9, further comprising: redistributing radio resources of the mobile communication on the basis of the received information.

11. The method of claim 9, further comprising: deciding on the basis of the received information whether to apply conventional radio communication via the base station, the direct communication between the at least two terminals, or both.

12. The method of claim 9, further comprising: controlling the quality of service of the end-to-end communication between the at least two user terminals by more than one base station; and

communicating with at least one other base station in order to coordinate the quality of service of the end-to-end communication between the at least two terminals.

13. The method of claim 9, further comprising: managing a virtual radio bearer database corresponding to the radio bearers applied in the direct communication between the at least two user terminals; and updating the virtual radio bearer database on the basis of the received information.

14. The method of claim 9, further comprising: controlling re-transmissions of the direct communication link between the at least two user terminals such that the re-transmissions are performed through the conventional radio communication link via the base station.

15. An apparatus, comprising a processor configured to: apply uplink signaling in mobile communication, wherein the signaling comprises information determined by the apparatus as related to the traffic status of a direct communication link between at least two user terminals being the terminating points of the communication; and transmit the information in the uplink to a base station from at least one user terminal involved in the direct communication link thereby enabling the base station to control the quality of service of an end-to-end communication between the at least two user terminals based on the received information.

16. The apparatus of claim 15, wherein the information is related to a packet data convergence protocol.

17. The apparatus of claim 15, wherein the uplink signaling is applied on a medium access control layer or on a radio resource control layer.

18. The apparatus of claim 15, wherein the transmitting is performed periodically, after a predetermined event, or on request.

19. (canceled)

20. (canceled)

21. The apparatus of claim 15, wherein the interface is further configured to:

transmit the information simultaneously with another user terminal in a synchronized manner, or at a predefined time offset compared to another user terminal when more than one user terminal transmits the information.

22. (canceled)

23. The apparatus of claim 15, further comprising an interface configured to:

receive the information; and the processor is applicable to a base station and further configured to:

monitor data volume of ongoing end-to-end communication between at least two user terminals on the basis of the received information; and